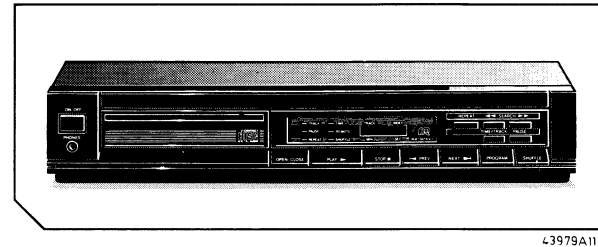


Service
Service
Service



43979A11

Service Manual



CONTENTS

- 1 Contents and Control Buttons
- 1 Technical specifications
- 2 Servicing hints, loading and cabinet parts
- 3 Electrical measurements and adjustments
- 4 Blockdiagram, panel data and partslist of the main panel
- 5 Control and display, wiring diagram and electrical partslist

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(D)

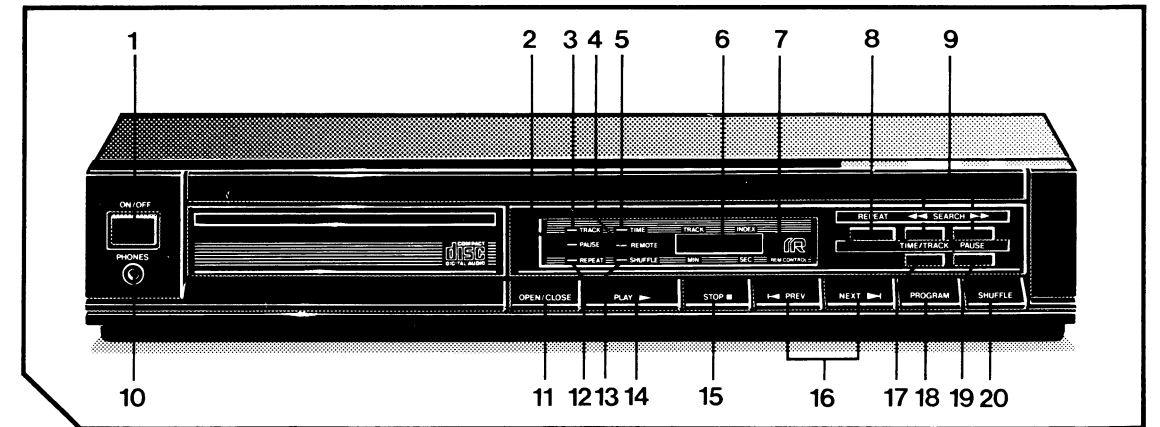
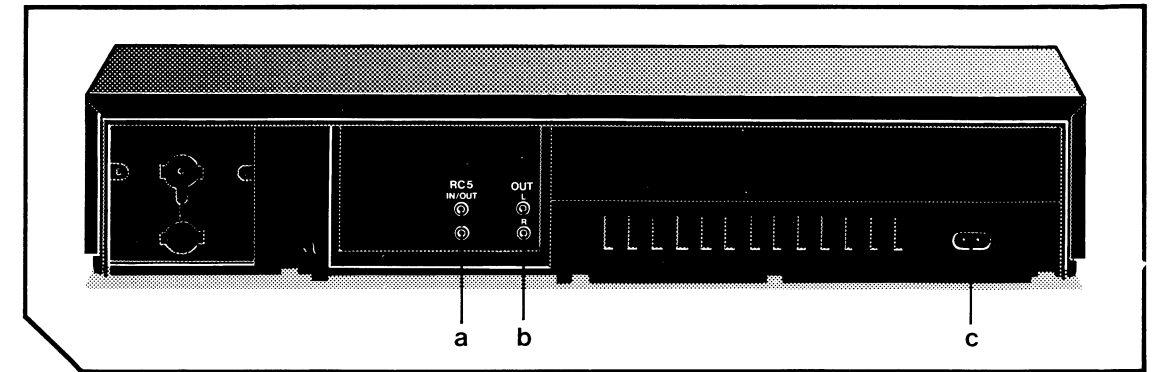
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio identici a quelli specificati.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.



43979A11

OPERATION

Explanation of keys etc

- 1 **ON/OFF** key
For switching on and off.
- 2 **PAUSE** LED
lights up when the player is in the pause mode.
- 3 **TRACK** LED
Lights up when you switch on the player.
Indicates that the display is showing the track numbers and any index numbers of the disc.
- 4 **REMOTE** LED (CD 482 only)
lights up briefly when the REM CONTROL eye receives a command from the remote control.
- 5 **TIME** LED
Lights up during the display of the playing time of a track or the disc.
- 6 **MULTIMODE CD LED DISPLAY**
Informs you about the functioning of the player.
Displays details from the disc contents list.
- 7 **REM CONTROL** eye (CD 482 only)
Receives the signals from the remote control.
- 8 **REPEAT** key
For repeating a disc or a programme
- 9 **<<SEARCH>>** keys
For fast search to a particular passage during play.
('<<' backwards, '>>' forwards.)
- 10 **PHONES** socket
For connection of headphones.
- 11 **OPEN/CLOSE** key
For opening and closing the disc tray.
- 12 **REPEAT** LED
Lights up when you repeat a disc or programme.
- 13 **SHUFFLE** LED
Lights up when you play a disc in random order.
- 14 **PLAY** key
For starting play
For returning to the beginning of a track
- 15 **STOP/CM** key
For stopping play (STOP)
For erasing a programme (CM = Clear Memory).
- 16 **PREV** and **NEXT** keys
For selecting a previous or a later track during play.
For selecting the track number you want play to begin with.
For selecting track numbers when compiling a programme.
('PREV' from high to low, 'NEXT' from low to high.)
- 17 **TRACK/TIME** key
For selecting between track number and playing time indication.
- 18 **PROGRAM** key
For storing track numbers in a programme.
For erasing track numbers from a programme.
For checking the programme.
- 19 **PAUSE** key
For briefly interrupting play.
For holding play at the start of a disc, track or passage.
- 20 **SHUFFLE** key
For playing all tracks on a disc in random order.

CONNECTIONS

- a RC5 IN/OUT:** for a remote control system.
Use this connection for:
- Connecting up the equipment when you are incorporating the player in a PHILIPS HiFi-system with remote control.
 - Connecting the remote control receiver EM 2200.
- b OUT L R:** For the connecting cable to the amplifier.
- Insert a red plug into the 'R' socket (right-hand channel) and the other plug into the 'L' socket (left-hand channel).
 - Insert the two other plugs into the corresponding sockets of the CD or AUX input of your amplifier. You can also use the TUNER or TAPE IN connection, but **never** the PHONO input. This is not suitable for Compact Disc reproduction.
- c** Connection for the mains lead.

TECHNICAL DATA

Typical Audio Performance

- Number of Channels: 2
- Frequency Range: 2-20 000 Hz
- Output resistance: 200 Ω
- Nominal load impedance: 100 kΩ//100 pF
- Amplitude Linearity: ± 0,1 dB (20-20 000 Hz)
- Phase Linearity: ± 1.0° (20-20 000 Hz)
- Dynamic Range: 90 dB (20-20 000 Hz)
- Signal-to-Noise Ratio: 96 dB (20-20 000 Hz)
- Channel Separation: 98 dB (20-20 000 Hz)
- Total Harmonic Distortion: 0,003% (20-20 000 Hz)
- Wow and Flutter: quartz crystal precision
- D/A Conversion: quadruple oversampling (176.4 kHz) with digital filter and two 16 bit D/A converters
- Error Correction System: Cross Interleaved Reed Solomon Code (CIRC)
- Audio Output Level: 2 V_{rms}.
- Headphones load impedance: 32-600 Ω

Optical Readout System

- Laser: semi-conductor AlGaAs
- Wavelength: 780 nm

Signal Format

- Sampling Frequency: 44.1 kHz
- Quantization: 16 bit linear/channel

Power Supply

- Mains Voltage: see type plate at rear of player
- Mains Frequencies: 50 and 60 Hz
- Power Consumption: 15 W approx.
- Safety Requirements: IEC

Cabinet, general

- Dimensions (wxhxd)
cabinet with tray closed: 420 x 75/81 x 280 mm approx.
cabinet with tray opened: 420 x 75/81 x 410 mm approx.

Disc

- Diameter: 120 mm and 80 mm
- Thickness: 1.2 mm
- Direction of Rotation (seen from reading side): anti-clockwise
- Scanning Velocity: 1.2-1.4 m/s
- Rotation Speed: 500-200 rpm
- Playing Time (theoretical): 74 min (stereo)
- Track Pitch: 1.6 μm
- Material: plastic

The right is reserved to change data if necessary

This Compact Disc player complies with the radio interference requirements as laid down in EEC (European Economic Community) regulations.

SERVICING HINTS

In the set chip components have been applied.
For disassembly and assembly of chip components see the figure below.

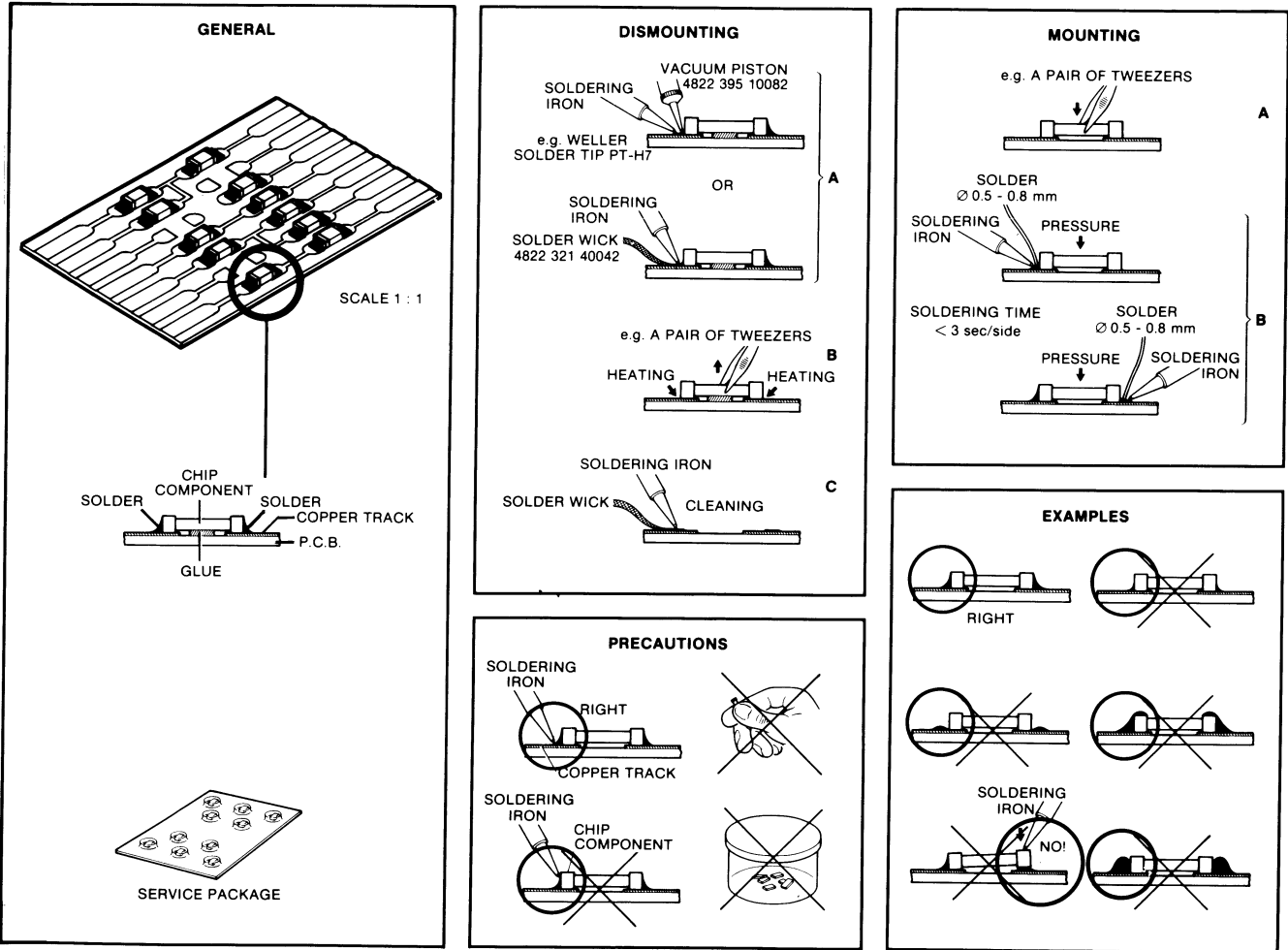
The disc should always rest properly on the turntable.
To achieve this a disc hold-down has been mounted in a bracket of the tray mechanism.
If the tray mechanism has to be disassembled for servicing, a separate disc hold-down should be used. For a service disc hold-down see drawing 42565 A12.

Test discs

It is important to treat the test discs with great care. The disorders on the discs (black spots, fingerprints, etc.) are exclusive and unambiguously positioned. Damage may cause additional drop-outs etc. rendering the intentional errors no longer exclusive. In that case it will no longer be possible to check e.g. the good working of the track detectors.

SERVICE TOOLS

Audio test disc (3)	4822 397 30085
Disc without errors (5)+ disc with DO errors, black spots and fingerprints (5A)	4822 397 30096
Disc 65 min 1kHz without pause	4822 397 30155
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132
13th order filter	4822 395 30204
Service cable (5p)	4822 321 21273
Service cable (14p)	4822 321 21598
Service flexfoil (14p)	4822 322 40066
Service connector (14p)	4822 267 50676
Glass disc	4822 395 90204



GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

ESD



NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I AVVERTIMENTO

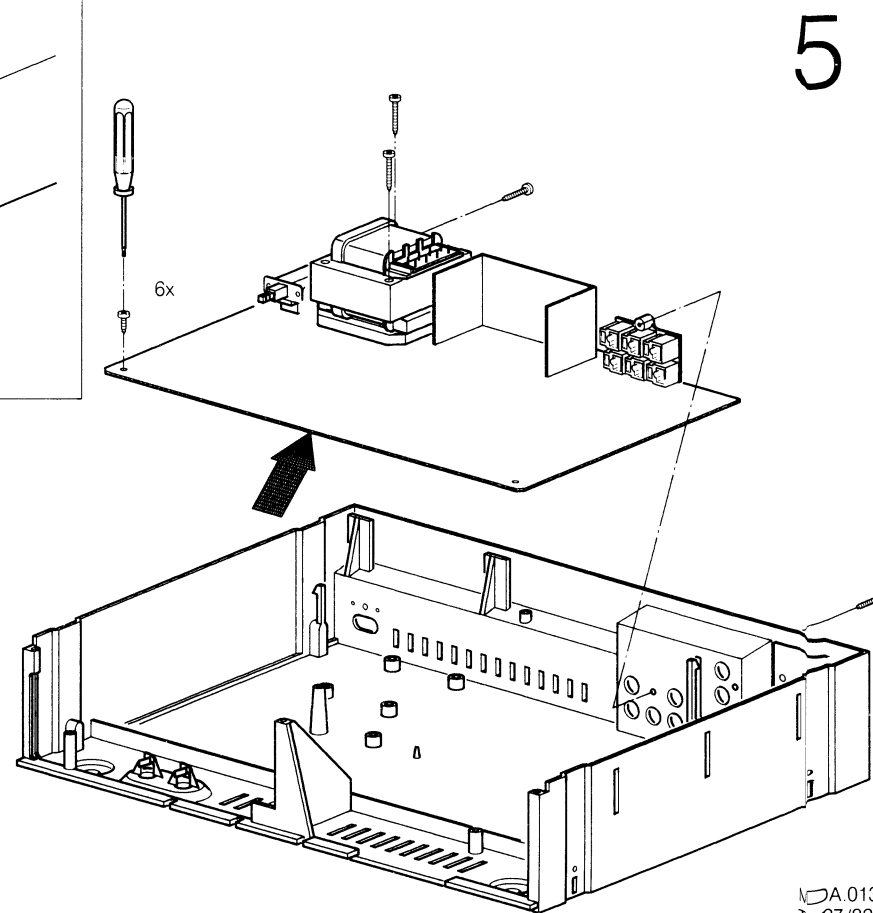
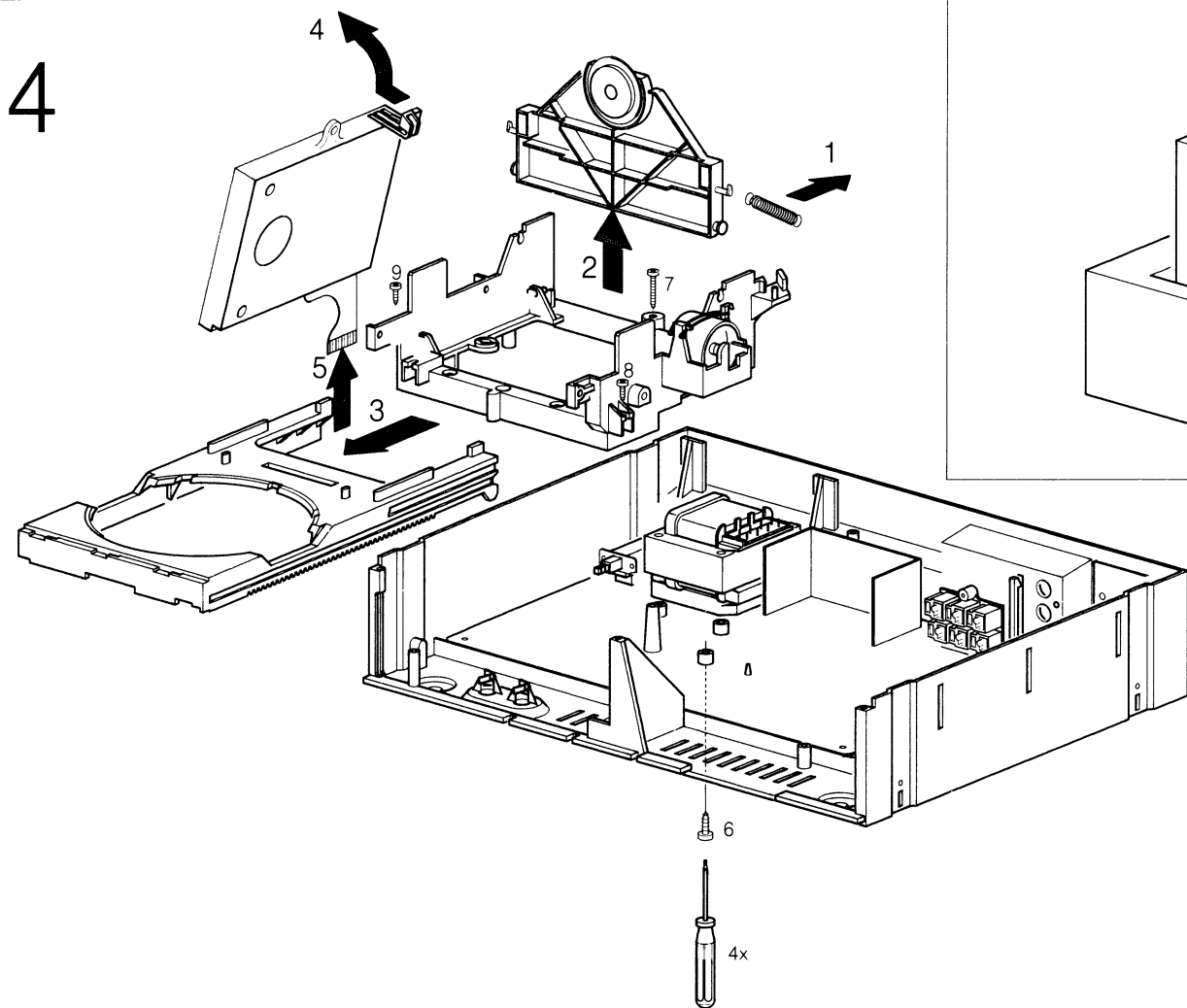
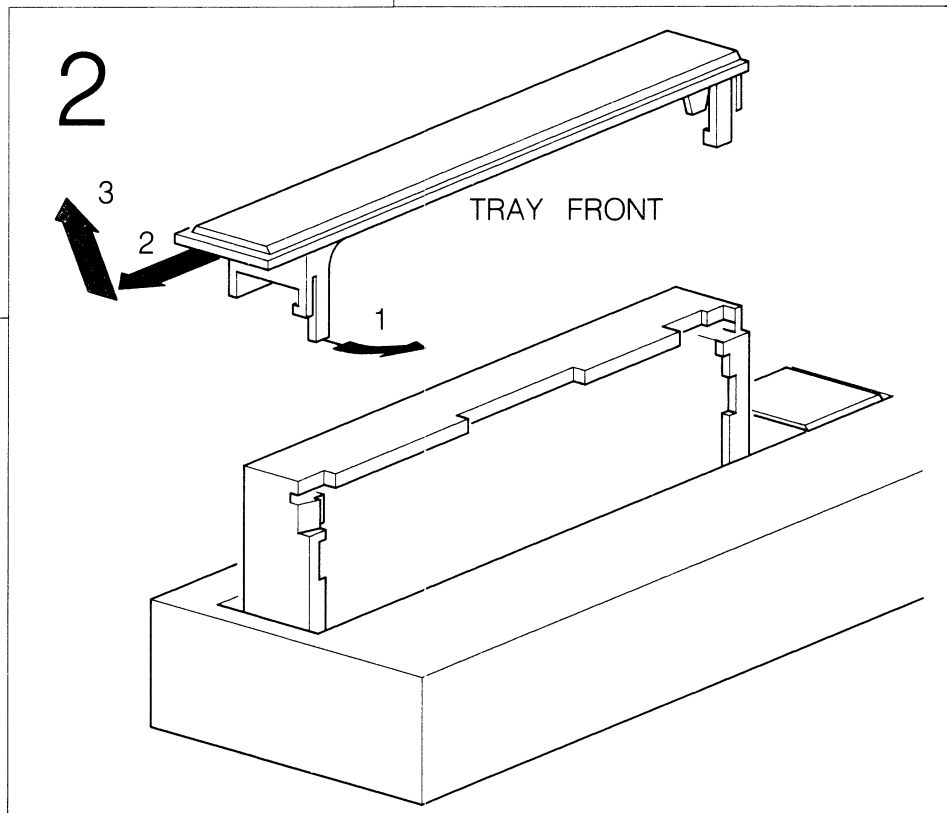
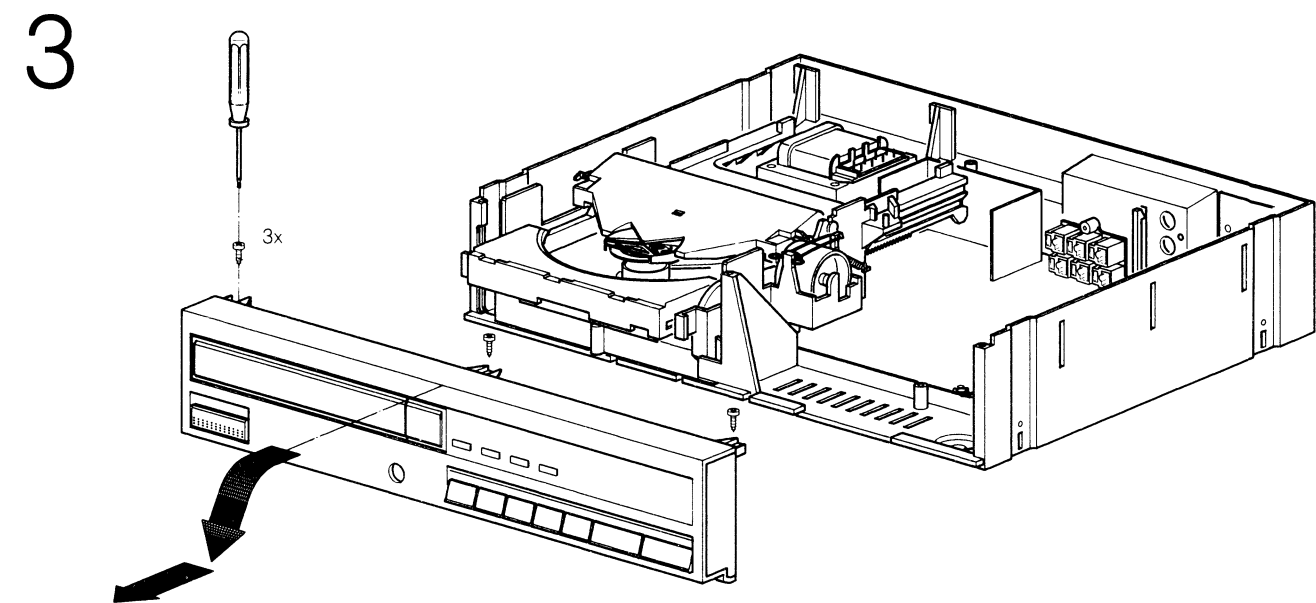
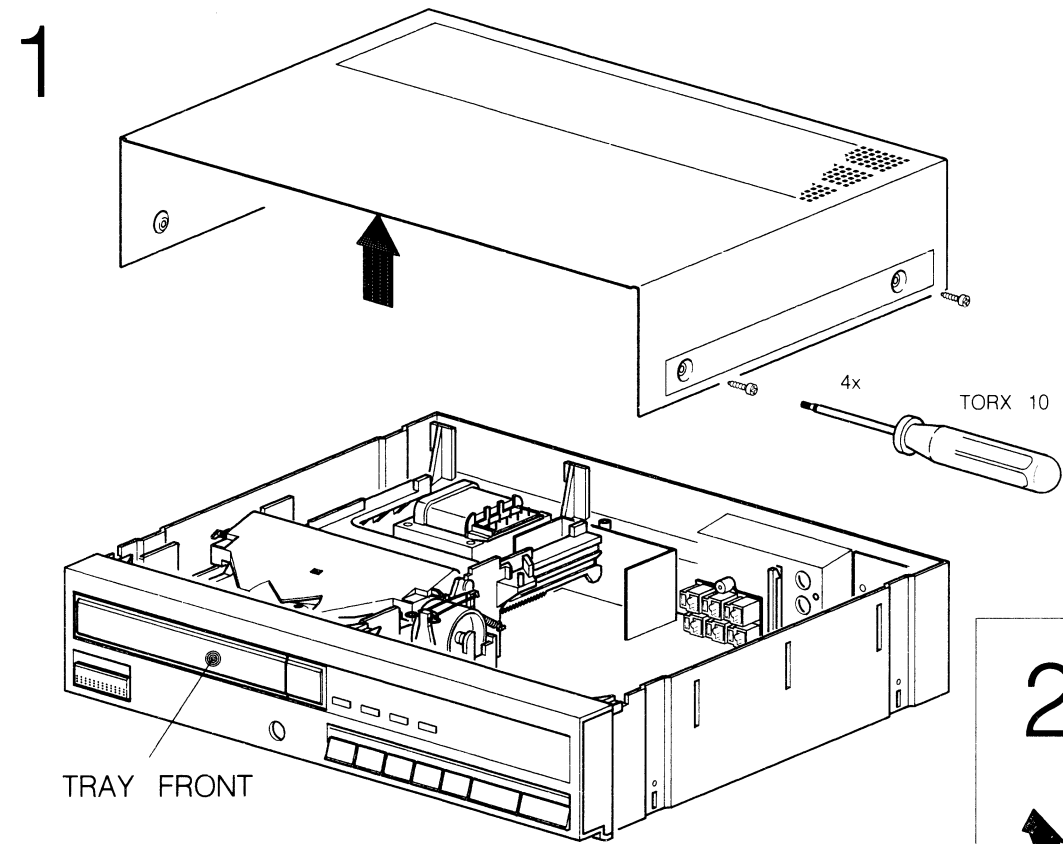
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

F ATTENTION

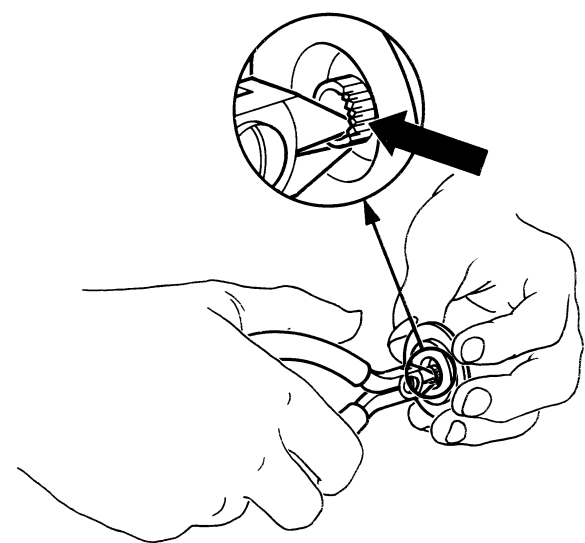
Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilier le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

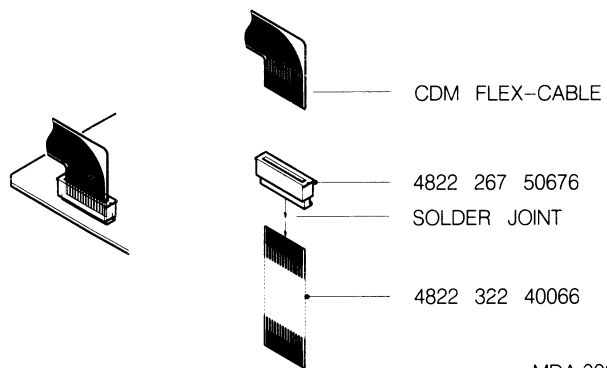


2-3
SERVICE DISC-HOLDDOWN



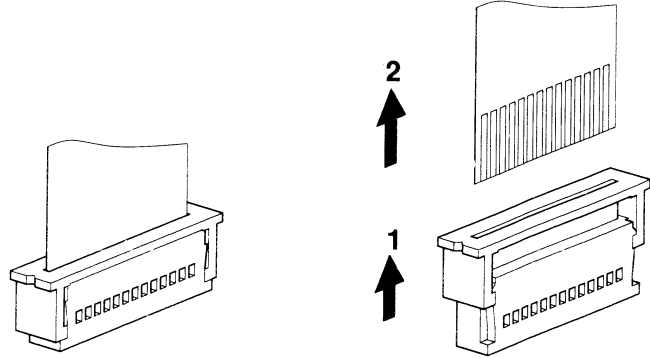
42 565 A12

SERVICE CDM FOIL



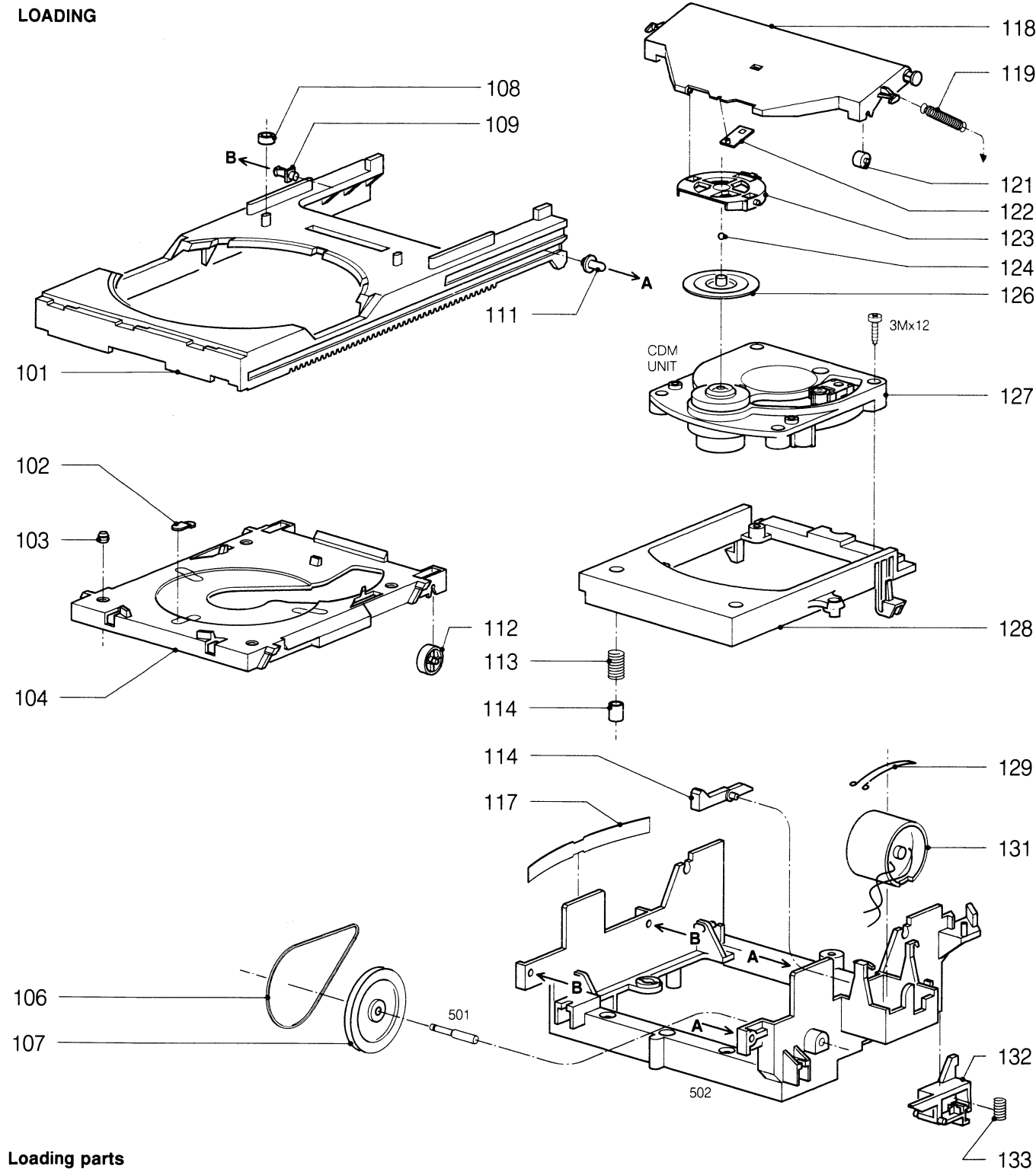
MDA.00311
T19-730

DEMOUNTING FOIL CDM



MDA.01408
T28/822

LOADING



Loading parts

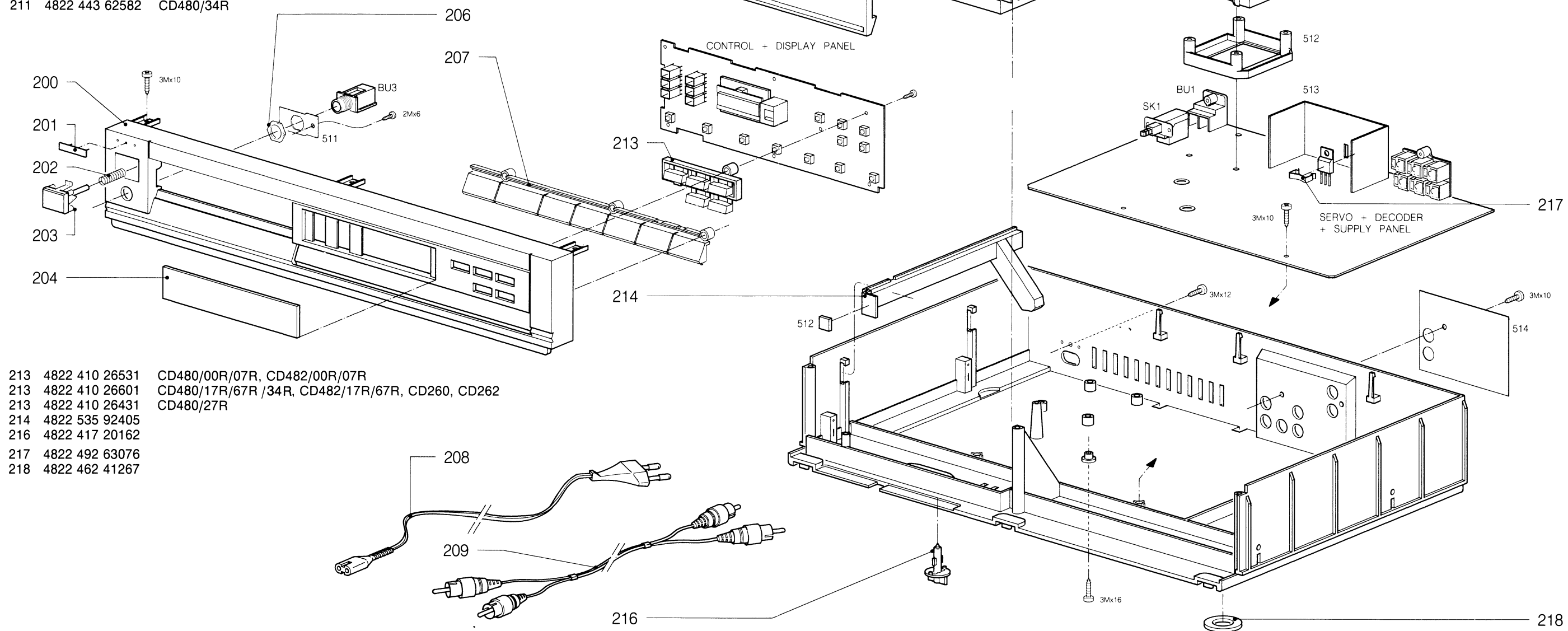
101	4822 444 50603	119	4822 492 32883
102	4822 325 50176	121	4822 528 90639
103	4822 325 50177	122	4822 466 92257
104	4822 466 92251	123	4822 402 61207
106	4822 358 10115	124	4822 520 40177
107	4822 522 32359	126	4822 530 80503
108	4822 532 51518	127	4822 691 30209
109	4822 402 61081	128	4822 402 61196
111	4822 402 61132	129	4822 492 63746
112	4822 528 90638	131	4822 361 20998
113	4822 492 51902	132	4822 402 50244
114	4822 466 61587	133	4822 492 51935
116	4822 402 61107		
117	4822 492 63659		
118	4822 444 60568		

EVA.00594
821/T19

EXPLODED VIEW CABINET

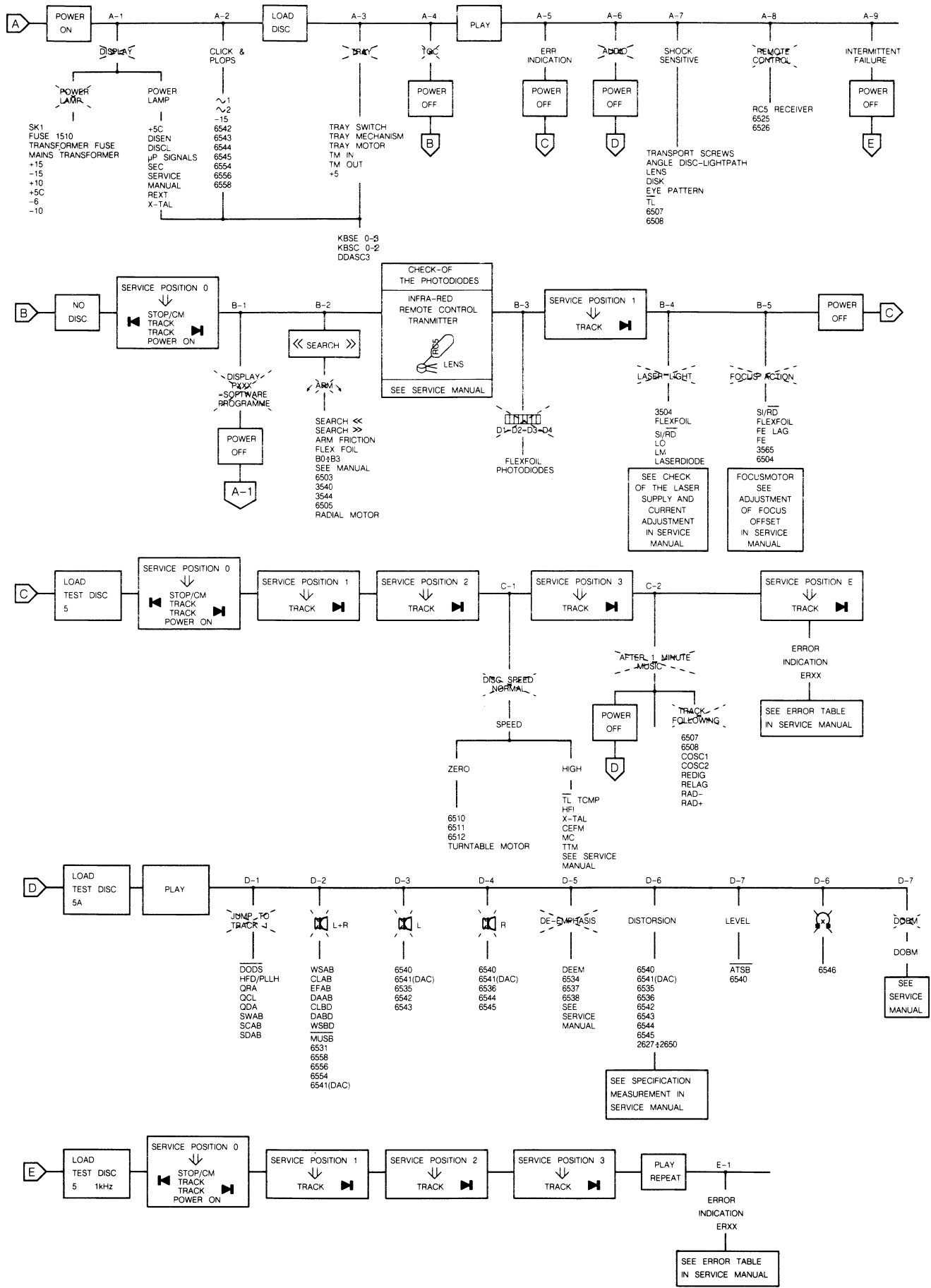
CABINET PARTS

200	4822 444 40253	CD480/00R/07R, CD482/00R/07R
200	4822 444 40256	CD480/17R/34R/67R, CD482/17R/67R
200	4822 444 40698	CD480/27R
200	4822 444 40265	CD260, CD262
201	4822 459 10806	CD480/00R/07R, CD482/00R/07R
201	4822 459 10827	CD480/17R/27R/67R, CD482/17R/67R, CD260, CD262
201	4822 459 10837	CD480/34
202	4822 492 51723	
203	4822 410 26533	
204	4822 381 11003	CD480/00R/07R/27R
204	4822 381 11008	CD480/17R/34R/67R
204	4822 381 11007	CD482/00R/07R
204	4822 381 11011	CD482/17R/67R
204	4822 381 11014	CD260
204	4822 381 11015	CD262
206	4822 505 10571	
207	4822 410 26532	CD480/00R/07R, CD482/00R/07R
207	4822 410 26599	CD480/17R/34R/67R, CD482/17R/67R, CD260, CD262
207	4822 410 26532	CD480/27R
208	4822 321 10457	CD480/00R, CD482/00R
208	4822 321 10445	CD480/07R/17R/27R/34R/67R, CD482/07R/17R/67R, CD260, CD262
209	4822 321 22873	
211	4822 444 50606	
211	4822 443 62581	CD480/27R
211	4822 443 62582	CD480/34R



213	4822 410 26531	CD480/00R/07R, CD482/00R/07R
213	4822 410 26601	CD480/17R/67R/34R, CD482/17R/67R, CD260, CD262
213	4822 410 26431	CD480/27R
214	4822 535 92405	
216	4822 417 20162	
217	4822 492 63076	
218	4822 462 41267	

3-1
ELECTRICAL MEASUREMENTS AND ADJUSTMENTS



A1
JP-SIGNALS

SIGNAL	MODE				REMARKS
RESET	POWER ON	100		PULS 'HIGH'	
X-TAL	STAND BY	101		4MHz	
TRAY IN	OPEN/CLOSE	83			HIGH WHEN TRAY IS CLOSING
TRAY OUT	OPEN/CLOSE	83A			LOW WHEN TRAY IS OPENING
ATSB	DISC SEARCH	89		'LOW'	
MUTE	STAND BY PLAY	67		'HIGH'	

MDA 01389
T-08 823

B2
B0,B1,B2,B3 SIGNALS

SIGNAL	MODE				REMARKS
B0	SERVICE POSITION 0 OR 1: SEARCH >>	36		'LOW'	
	SERVICE POSITION 0 OR 1: SEARCH <<	36		'LOW'	
B1	SERVICE POSITION 0 OR 1: SEARCH >>	34		'HIGH'	
	SERVICE POSITION 0 OR 1: SEARCH <<	34		'HIGH'	
B2	SERVICE POSITION 0 OR 1: SEARCH >>	33		'LOW'	
	SERVICE POSITION 0 OR 1: SEARCH <<	33		'HIGH'	
B3	SERVICE POSITION 0 OR 1: SEARCH >>	32		'HIGH'	
	SERVICE POSITION 0 OR 1: SEARCH <<	32		'HIGH'	

MDA 01386
T-08 823

B3
CHECK OF THE PHOTODIODES

STEP	SIGNAL	MODE				REMARKS
1	-	POWER ON		-	-	SEE DRAWING 3831AA12 SIGNAL DEPENDS ON DISTANCE LENS -> LED OF REMOTE CONTROL

MDA 01378
T-08 824

B4
CHECK OF LASER SUPPLY (WITH DEMOUNTED CDM AND ADDITIONAL CIRCUIT)

STEP	SIGNAL	MODE				REMARKS
1	LO	SERV. POS. 2		-	$1.8 < V < 3$	 S1=1 GREEN LED to LO to LM LITTLE LIGHT CONNECTED TO PANEL
	LM	SK		-	$170 < mV < 20$	
2	LO	SERV. POS. 2		-	$1.8 < V < 3$	 S1=1 GREEN LED to LO to LM LITTLE LIGHT CONNECTED TO PANEL
	LM	SK		-	$170 < mV < 20$	
3	LO	POWER ON		-	$0V \pm 0.2V$	S1=0 NO LIGHT

MDA 01379
T-08 824

B4
LASER CURRENT ADJUSTMENT

STEP	SIGNAL	MODE					REMARKS
1	—	POWER OFF		R3520	1kΩ	—	PRE-ADJUSTMENT OHMIC VALUE
2	EYE-PATTERN HF	TEST DISC 5 PLAY		—	—	SEE DRAWING 37017B8	IF NO SIGNAL SEE "START UP PROCEDURE"
3	LASER CURRENT ± VOLTAGE ACROSS R3501	TEST DISC 5 PLAY TRACK 1		R3520	50mV DC	—	—

MDA 01380
T-08 823

B5
ADJUSTMENT OF FOCUS-OFFSET

STEP	SIGNAL	MODE					REMARKS
1	—	POWER ON	—	R3569	—	—	ADJUST FOR OPTICAL MID-POSITION
2	FE LAG	PLAY TEST DISC 5 TRACK 1		R3569	400mV ± 40mV DC	—	FINE ADJUSTMENT

MDA 01381
T-08 824

B5
FOCUS ACTION

SIGNAL	MODE				REMARKS
Si/Rd	SERVICE POSITION 1 WHEN REPEATING START UP PROCEDURE	21		PULS "LOW"	SEE DRAWING MDA 01403
FE	TEST DISC 5A. SERVICE POSITION 1 WHEN REPEATING START UP PROCEDURE	26			SEE DRAWING MDA 01413
FE-LAG	TEST DISC 5A.	27			SEE ADJUSTMENT OF FOCUS-OFFSET

MDA 01384
T-08 823

C1
HIGH SPEED DISC ROTATION

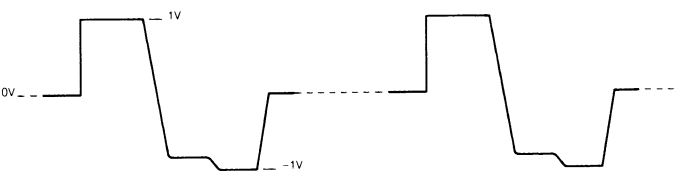
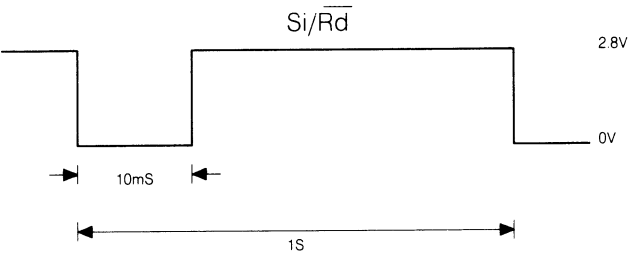
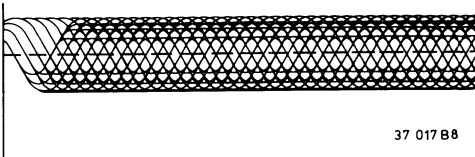
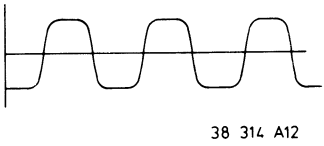
SIGNAL	MODE				REMARKS
TL	TEST DISC 5. PLAY OR SERVICE POSITION 2	16		PULSES "LOW"	WHEN THE DISC IS SLOWLY BRAKED BY HAND
TCMP	TEST DISC 5. PLAY OR SERVICE POSITION 2	PIN 35 6530	+5V		AFTER 4 TL PULSES
HFI	TEST DISC 5. PLAY OR SERVICE POSITION 2	65			SEE DRAWING 37017B8
X-tal	TEST DISC 5A. PLAY OR SERVICE POSITION 2	69		11.28MHz	IF THIS FREQUENCY DEVIATES CHECK X-OUT ON FILTER-B
CEFM	TEST DISC 5A. PLAY OR SERVICE POSITION 2	68		4.32MHz	
MC	TEST DISC 5. PLAY OR SERVICE POSITION 2	81			SEE DRAWING 38849A12
TTM-	TEST DISC 5A. PLAY OR SERVICE POSITION 2	46	APPROX -1V		

MDA 01385
T-08 823

C2
TRACK FOLLOWING

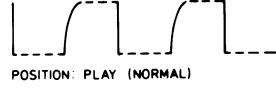
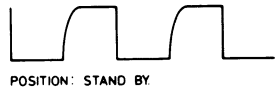
SIGNAL	MODE				REMARKS
RE dig	TEST DISC 5. PLAY OR SERVICE POSITION 3	37		PULSES "HIGH"	WHEN THE DISC IS SLOWLY BRAKED BY HAND
RE lag	TEST DISC 5. PLAY OR SERVICE POSITION 3	41	APPROX 2.5V DC		
RAD-	TEST DISC 5A. PLAY OR SERVICE POSITION 3	42			
RAD+	TEST DISC 5A. PLAY OR SERVICE POSITION 3	40			
C osc1	TEST DISC 5. PLAY OR SERVICE POSITION 3	30		650Hz	
C osc2	TEST DISC 5. PLAY OR SERVICE POSITION 3	31		650Hz	

MDA 01387
T-08 825



MDA 01413
T33/823

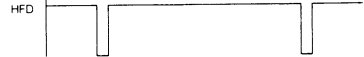
MDA 01403
T33/821



38 849 A12

POSITION	PLAYER	POWER ON	SERVICE POSITION 3	PLAY	SEARCH PAUSE
DOOS	SIGNAL	"LOW"	"HIGH"	"HIGH"	

MDA 01143
T12 -651



MDA 0024
T07-804

D1
JUMP TO TRACK 1

SIGNAL	MODE				REMARKS
DODS	TEST DISC 5A, SEARCH >>R SEARCH <<	19			SEE DRAWING MDA 01143
HFD/PLH	TEST DISC 5A, TRACK 15, PLAY	23		PULSES "LOW"	SEE DRAWING MDA 00240 WHEN THE DISC IS SLOWLY BRAKED BY HAND
QRA	TEST DISC 5A, PLAY	75			> SEE DRAWING MDA 00453
QDA	TEST DISC 5A, PLAY	77			
QCL	TEST DISC 5A, PLAY	76			
SWAB	TEST DISC 5A, PLAY	78			SEE DRAWING MDA 00239
SCAB	TEST DISC 5A, PLAY	79			SEE DRAWING MDA 00239
SDAB	TEST DISC 5A, PLAY	80			SEE DRAWING MDA 00239

MDA 01388
T-08 823

D2
NO AUDIO OUTPUT LEFT + RIGHT

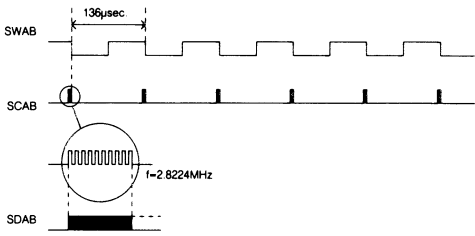
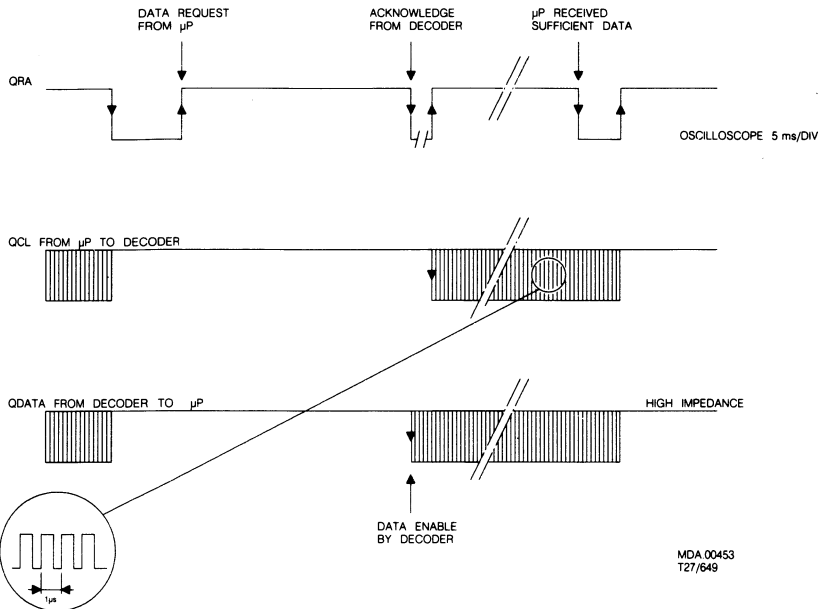
SIGNAL	MODE				REMARKS
WSAB	DISC, PLAY	71			SEE DRAWING 38847C12
CLAB	DISC, PLAY	72			SEE DRAWING 38847C12
DAAB	DISC, PLAY	73		ACTIVITY	SEE DRAWING 38847C12
EFAB	TEST DISC 5A,	74		PULSES	WHEN THE DISC IS SLOWLY BRAKED BY HAND
CLBD	DISC, PLAY	87			SEE DRAWING 38848C12
DIABD	DISC, PLAY	86		ACTIVITY	SEE DRAWING 38848C12
WSBD	DISC, PLAY	85			SEE DRAWING 38848C12
MUSB	DISC, PAUSE, OR NEXT OR PREVIOUS	90		"LOW"	

MDA 01390
T-08 823

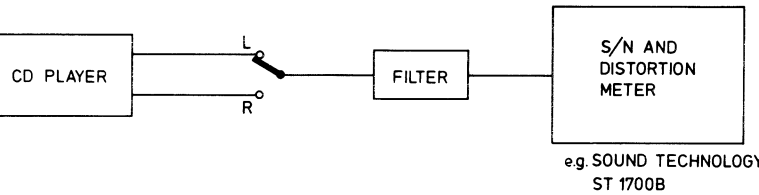
DAC IC

SIGNAL	MODE				REMARKS
OUTPUT OF OP-AMP	DISC, PLAY	94		LF SIGNAL	LEFT CHANNEL
OUTPUT OF OP-AMP	DISC, PLAY	95		LF SIGNAL	RIGHT CHANNEL

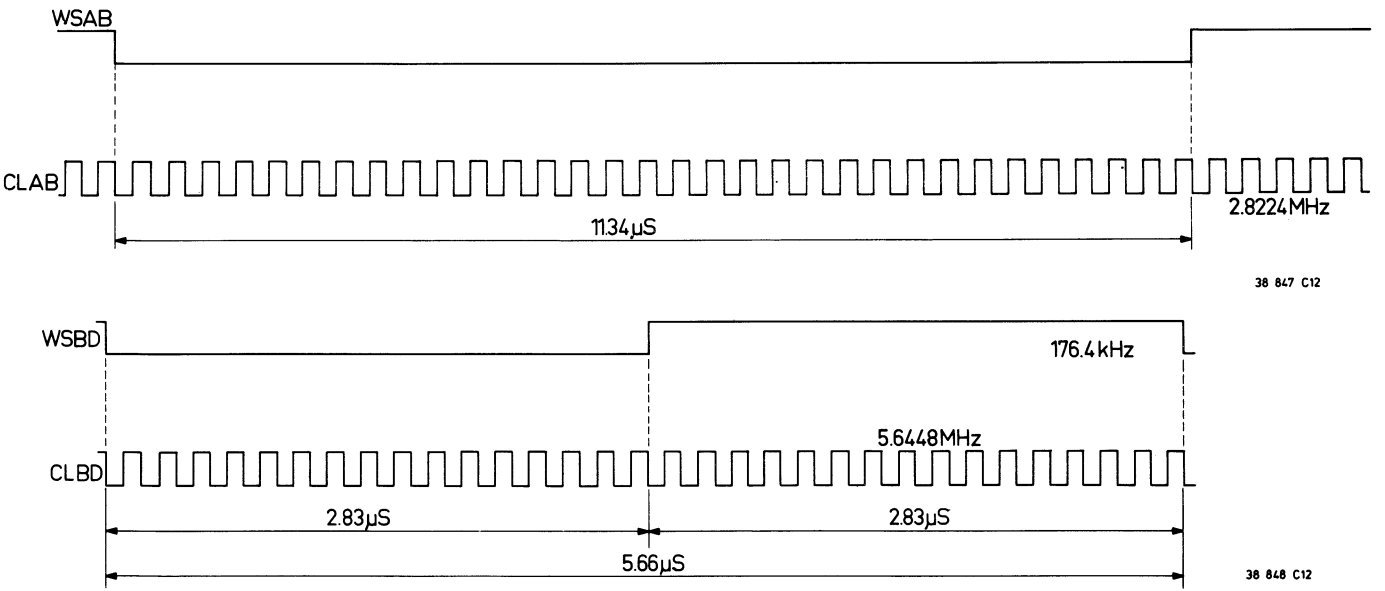
MDA 01392
T-08 823



MDA 00239
T12/638
CD450

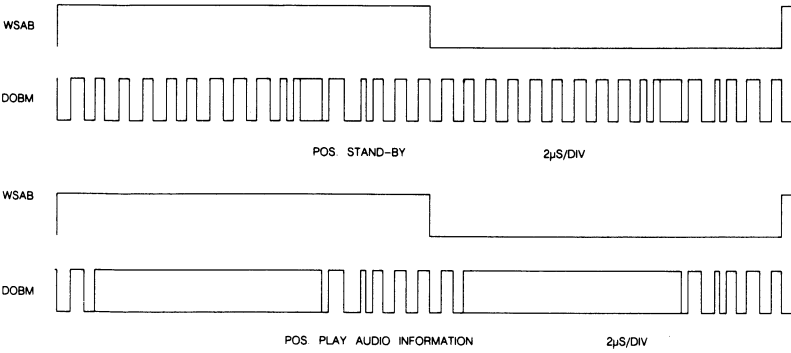


30 459 A12



38 847 C12

38 848 C12



MDA 00238
T07/733

D5
DEEM CIRCUIT

SIGNAL	MODE				REMARKS
DEEM	TEST DISC 5A TRACK 14 PLAY TRACK 15 PLAY	84		LOW HIGH	SEE TESTPOINT 92 AND 91 ON DEEM CIRCUIT
TESTPOINT 92	TEST DISC 5A TRACK 14	92		LF SIGNAL	
TESTPOINT 92	TEST DISC 5A TRACK 15	92		NO SIGNAL	
TESTPOINT 91	TEST DISC 5A TRACK 14	91		LF SIGNAL	
TESTPOINT 91	TEST DISC 5A TRACK 15	91		NO SIGNAL	

MDA 01393
T-08 825

D6
SPECIFICATIONS MEASUREMENT

SIGNAL	MODE				REMARKS
BU2-L	TEST DISC 3, PLAY, TOTAL HARMONIC DISTORSION	FILTER OUTPUT			SEE DRAWING 3049A12
BU2-R	TEST DISC 3, PLAY, TOTAL HARMONIC DISTORSION	FILTER OUTPUT			SEE DRAWING 3049A12
BU2-L	TEST DISC 3, PLAY, SIGNAL-TO-NOISE RATIO	FILTER OUTPUT			SEE DRAWING 3049A12
BU2-R	TEST DISC 3, PLAY, SIGNAL-TO-NOISE RATIO	FILTER OUTPUT			SEE DRAWING 3049A12

 SEE TECHNICAL DATA

MDA 01391
T-08 832

D9
DOBM DIGITAL OUTPUT

SIGNAL	MODE				REMARKS
DOBM	TEST DISC 5A, PLAY	88			SEE DRAWING MDA 00238

MDA 01391
T-08 823

ERROR TABLE

System errors

Indi- Cause cation

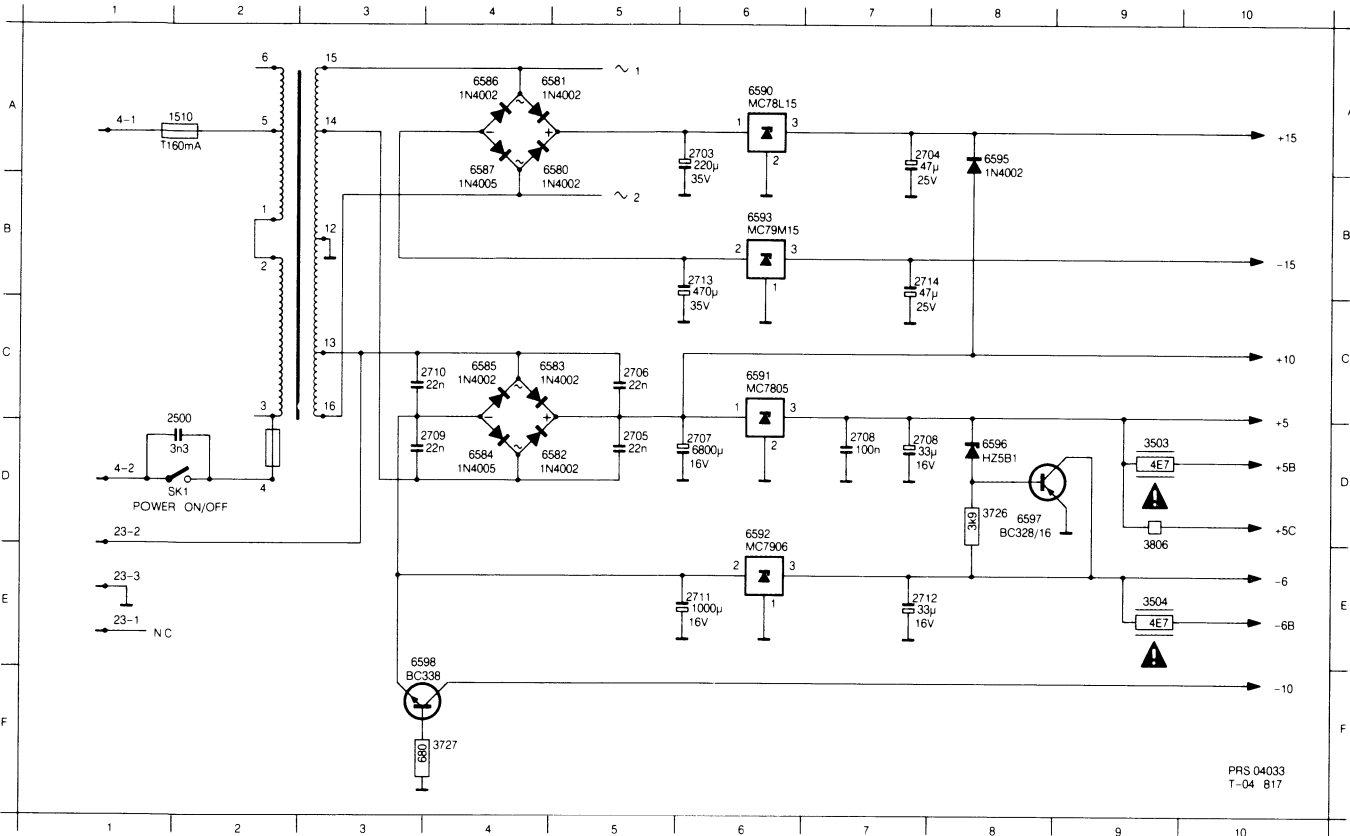
Check

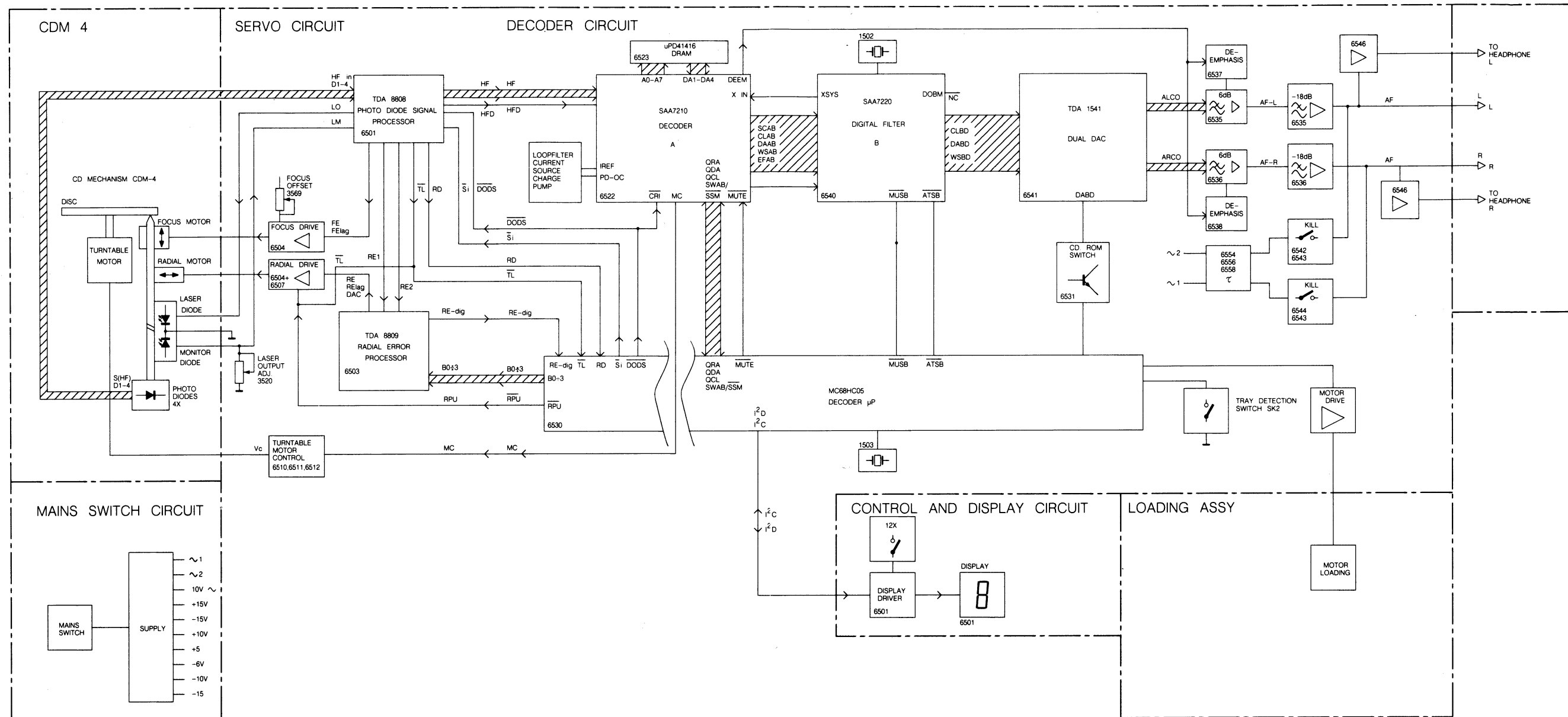
Er 01	No RD	Si, Sc, RD, Photodiode signal processor
Er 02	No $\overline{\text{TL}}$ pulse at start-up	$\overline{\text{TL}}$, HF, Photodiode signal processor, CD disc present
Er 03	No lead-in track found	CD disc, radial arm position, REdig, Radial error processor
Er 04	Too many $\overline{\text{TL}}$ pulses in PLAY	CD disc, $\overline{\text{HFD}}$
Er 05	$\overline{\text{TL}}$ pulse > 50 msec. in PLAY	CD disc, HF in, photodiodes
Er 06	No $\overline{\text{TL}}$ pulse within 0.5 sec. during track jumping	RE-lag circuit
Er 07	Subcoding error during PLAY	HF
Er 08	TOC error	CD disc, turntable motor control, radial arm position

Operating errors

Er 30	"NEXT" key operated during the last track, with "REPEAT" turned off.
Er 31	"PREVIOUS" key operated during the first track, with "REPEAT" turned off.
Er 32	Index selected before a track has been selected.
Er 33	The selected index number does not exist on this disc.
Er 34	Programme survey requested; no programme present.
Er 35	The programme memory is full.
Er 36	The programmed track is not present on this CD disc.
Er 37	The selected track is not present on this CD disc.
Er 60	End of the "FAST FORWARD" search motion.
Er 61	End of the "FAST REVERSE" search motion.

1510	A 2	2705	D 5	2708	D 8	2712	E 8	3504	E 9	6580	A 5	6584	D 4	6590	A 6	6595	A 8	SK1	D 2
2500	C 2	2706	C 5	2709	D 4	2713	B 6	3726	D 8	6581	A 5	6585	C 4	6591	C 6	6596	D 8		
2703	A 6	2707	D 6	2710	C 4	2714	B 8	3727	F 4	6582	D 5	6586	A 4	6592	D 6	6597	D 8		
2704	A 8	2708	D 7	2711	E 6	3503	D 9	3806	D 9	6583	C 5	6587	A 4	6593	B 6	6598	E 4		



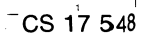

 PRS 05151
 T02-823

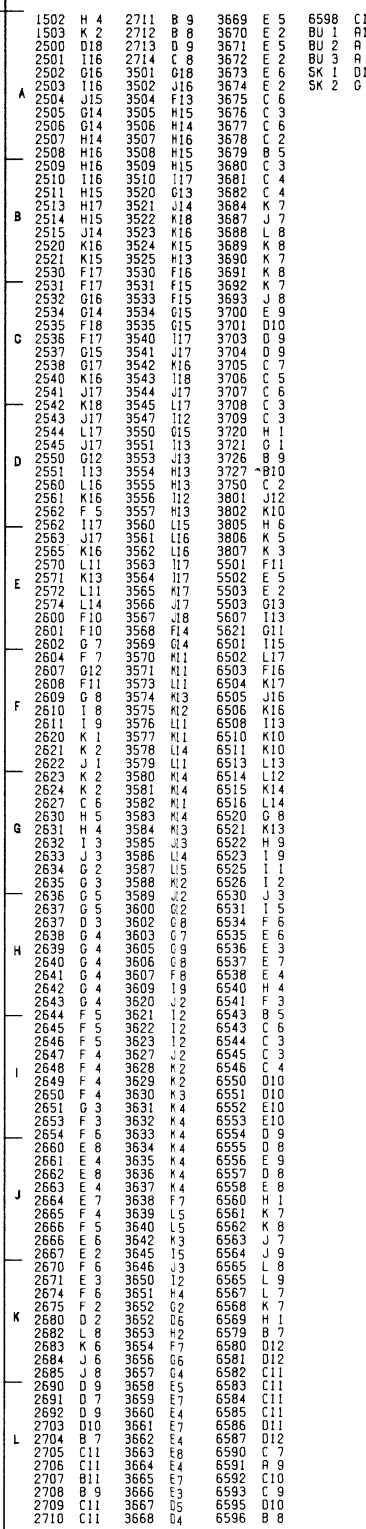
AGC - Automatic Gain Control
 B0-B3 - Control bits for radial circuit
 BEQ - Equalizer reference current input
 BGC - DC and LF gain control reference input
 Cosc1 - Capacitor wobble oscillator
 Cosc2 - Capacitor wobble oscillator
 DEC - Decoupling input of inkruat bypass
 DET - HF detector voltage input
 DIV4 - Divide by 4 input
 DODS - Drop out detector suppression
 D1÷4 - Photodiode currents
 FE - Focus error signal
 FE lag - Focus error signal for LAG network
 HF - HF output for DEMOD
 HFD - HF detector output for DEMOD
 HF-in - HF current input to HF amplifier
 HF-out - HF amplifier and equalizer voltage output
 LM - Laser monitor diode input
 LO - Laser amplifier current output
 MC - Motor control signal
 offset IN - Offset control input
 offset OUT - Offset control output
 PLLH - PLL on hold output
 RADout - output of RE2-RE1 input
 RE - Radial error signal (Amplified RE₂-RE₁ currents)

Rosc - Resistor wobble oscillator
 Rwob - Wobble generator input
 RE1 - Radial error signal 1 (summation of amplified currents D₃ and D₄)
 RE2 - Radial error signal 2 (summation of amplified currents D₁ and D₂)
 RE dig - Radial error digital
 RE lag - Radial error signal for LAG network
 Sc - Starting up capacitor input
 Si/RD - On/off control for laser supply and focus circuit. Ready signal, Starting up procedure succesful.
 TL - Track loss output signal
 TTM- - Control voltage for turntable motor
 TTM+ - Control voltage for turntable motor
 Vext- - Supply connection
 Vext+ - Supply connection

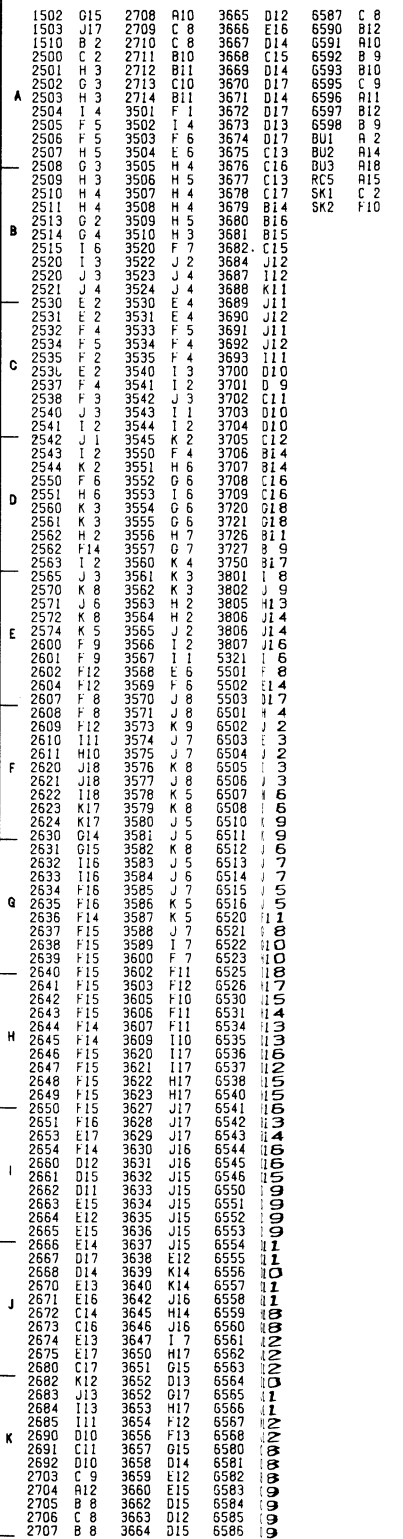
ATSB - Attenuation of Audio level in Search position (Cueing)
 CD ROM Switch - Digital Data information on disc signal
 CEFM - Clock Eight-to-Fourteen Modulator
 CLAB - Clock signal Decoder-A to Filter-B
 CLBD - Clock signal Filter-B to DAC
 CREF - Reference Current
 CRI - Counter Reset Inhibit
 DAAB - Data signal Decoder-A to Filter-B
 DABD - Data signal Filter-B to DAC
 DEEM - Deemphasis
 DOBM - Digital out signal
 EFAB - Error flag Decoder-A to Filter-B
 MUTE - Mute signal

MUSB - Soft Mute signal
 PD/OC - Phase detector - oscillator control
 QCL - Q-channel Clock signal
 QDA - Q-channel Data signal
 QRA - Q-channel Request Acknowledge
 SCAB - Subcode clock Decoder-A to Filter-B
 SDAB - Subcode data Decoder-A to Filter-B
 SWAB/SSM - Subcode Word/Start-stop motor signal
 WSAB - Word select Decoder-A to Filter-B
 WSBD - Word Select Filter-B to DAC
 XIN - Oscillator signal in Decoder-A
 XSYS - Oscillator signal out Filter-B



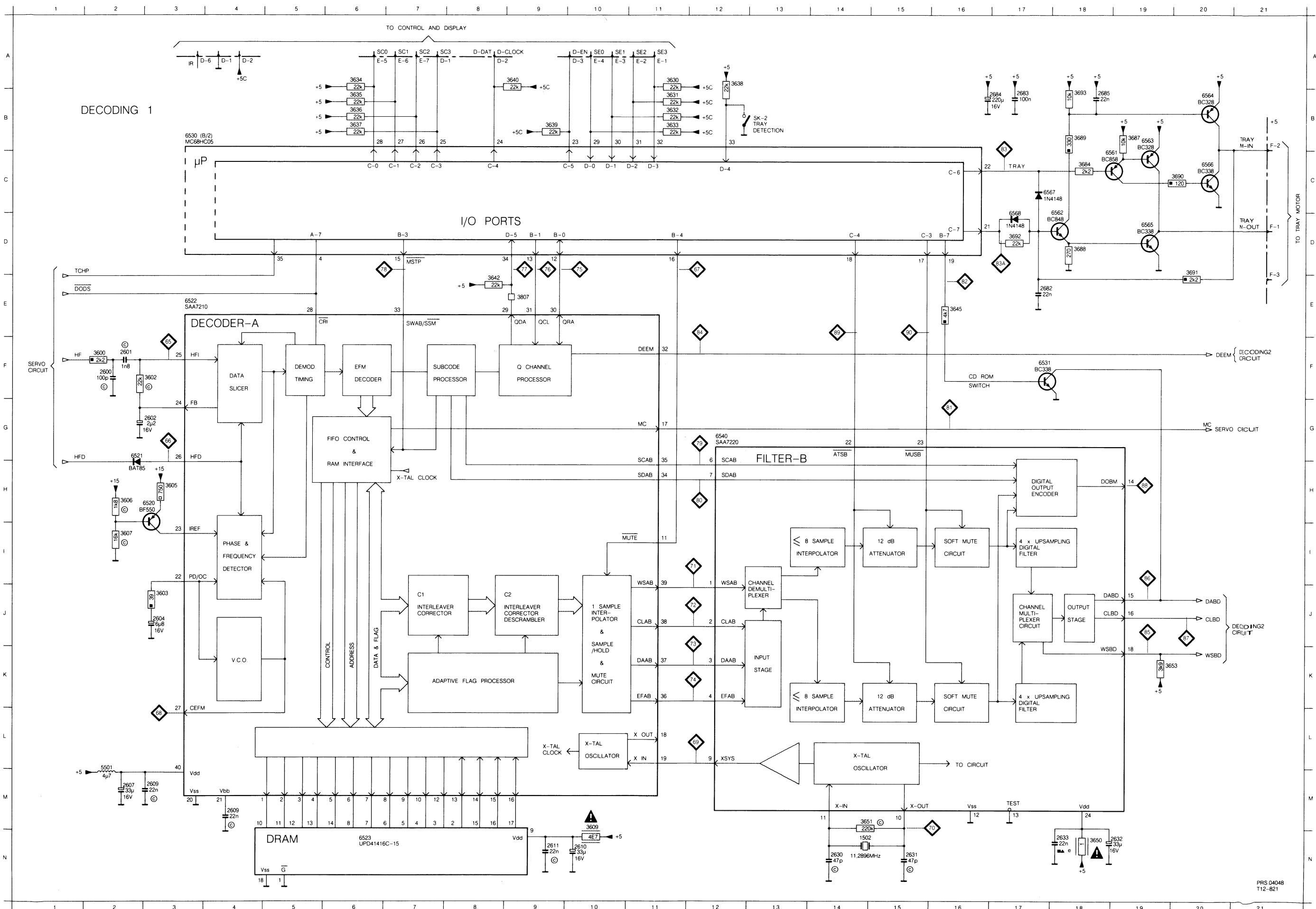


CS 17 549

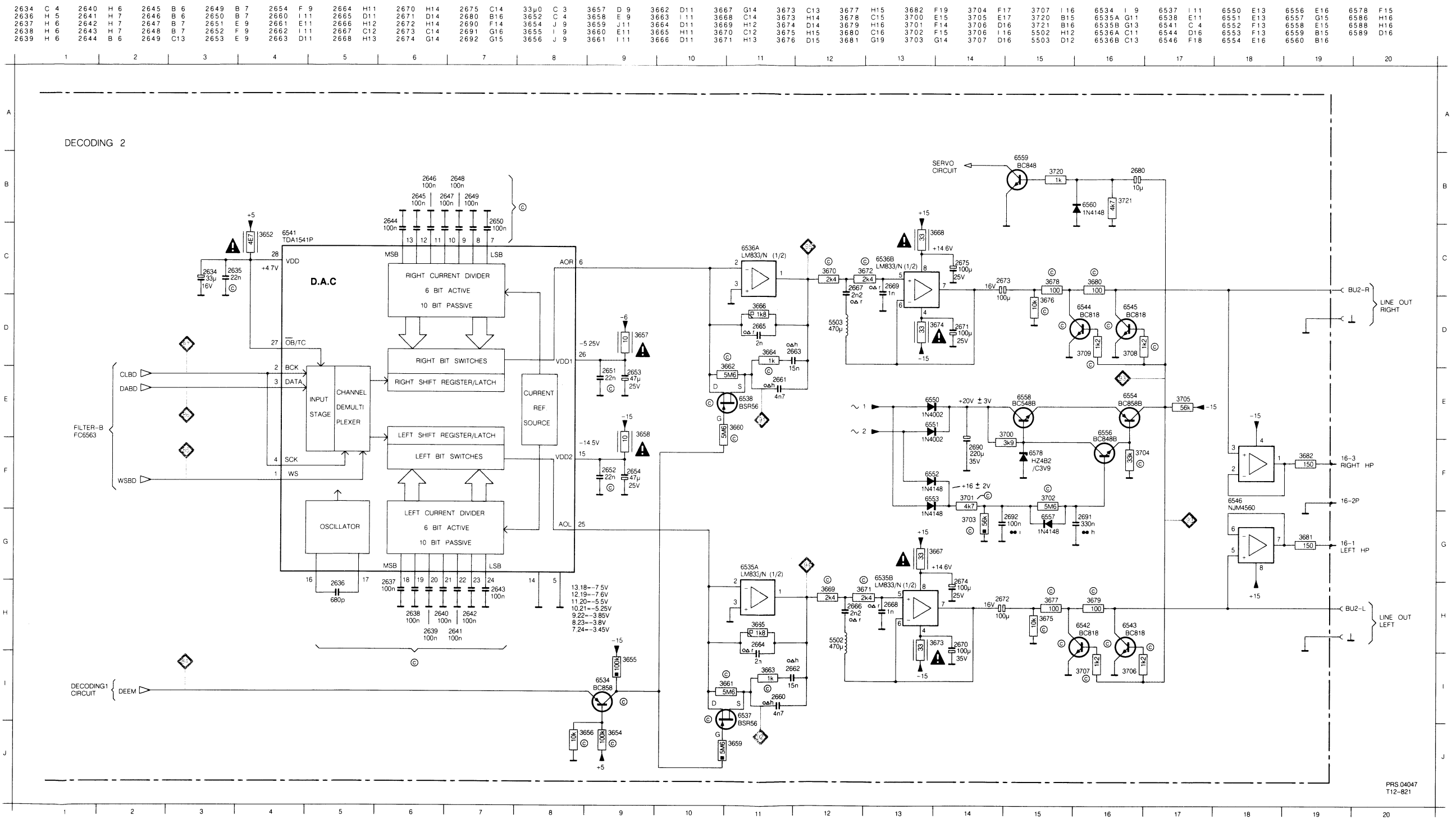


DECODING 1

1502 N14 2602 G 3 2609 M 3 2611 N 9 2632 N19 2683 B17 3600 F 2 3605 H 3 3609 M10 3632 B11 3635 B 6 3638 A12 3642 E 8 3651 M14 3687 B19 3690 C20 3693 B18 6520 H 3 6523 N 6 6540 G12 6563 B19 6566 C20 SK-2 B13
 2600 F 2 2604 J 3 2609 M 4 2630 N14 2633 N18 2684 B17 3602 F 3 3606 H 2 3630 A11 3633 B11 3636 B 6 3639 B 9 3645 E16 3653 K20 3688 D18 3691 D20 3807 E 9 6521 G 2 6530 B 3 6561 C18 6564 B20 6567 C17
 2601 F 2 2607 M 2 2610 N10 2631 N15 2682 E17 2685 B18 3603 J 3 3606 I 2 3631 B11 3634 A 6 3637 B 6 3640 A 9 3650 N18 3684 C18 3689 B18 3692 D17 5501 L 2 6522 E 3 6531 F17 6562 C18 6565 D19 6568 C17



DECODING 2

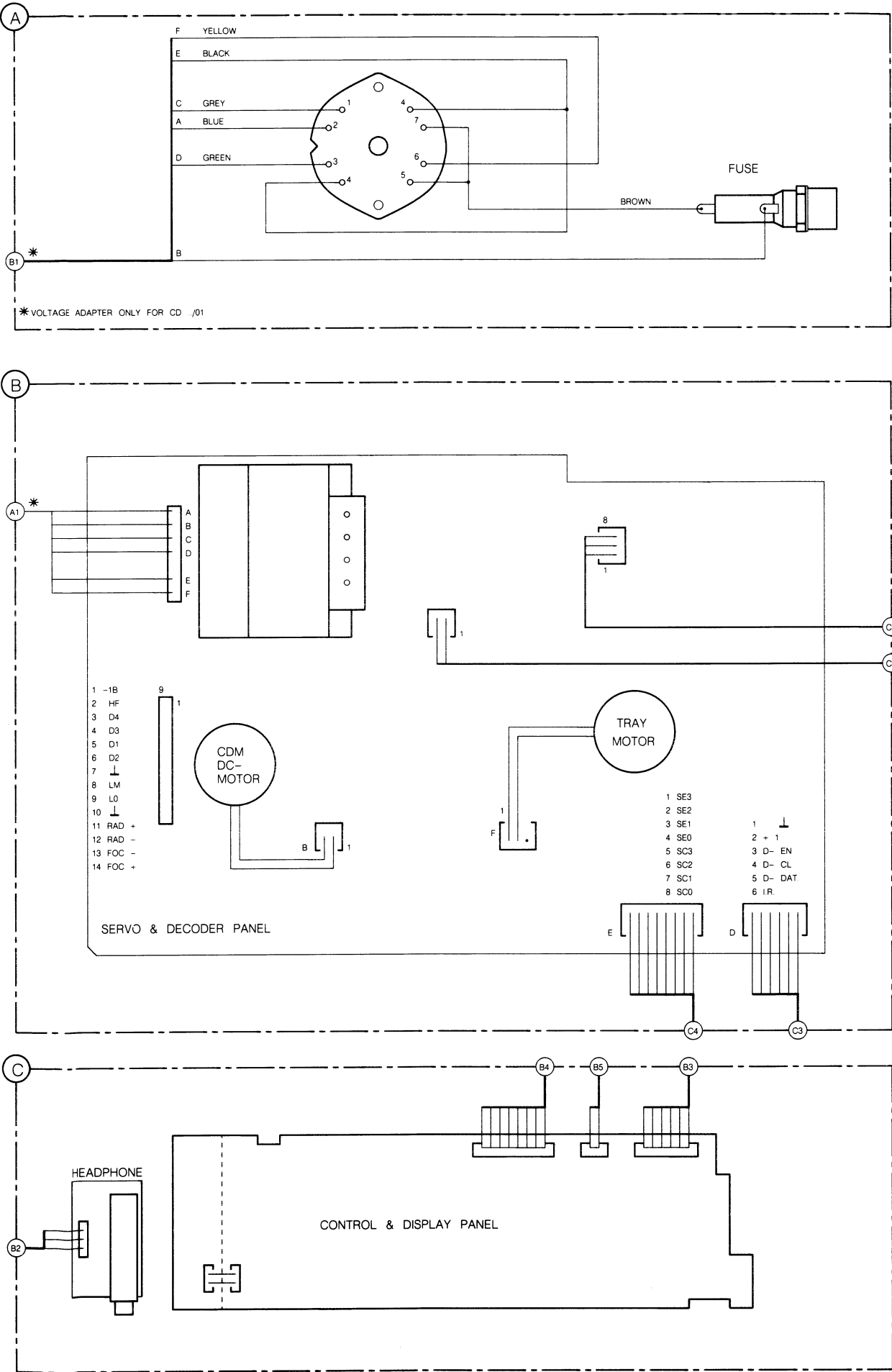


43 722 B12

* CD 482 ONLY

RES. Safety 3E3	4822 111 30593
LED Display 6501	4822 130 90552
LED orange	4822 130 80898
LED Holder	4822 255 40817
Transistor BC558	8422 130 40941
TACT Switch	4822 276 11896
W. Receiver	4822 214 51723

WIRING DIAGRAM



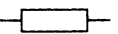
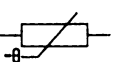
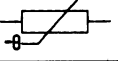
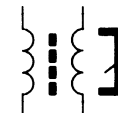
ELECTRICAL PARTSLIST SERVO + DECODER PANEL

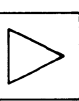
For non active chip components see separate list.

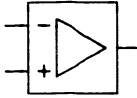
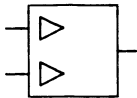
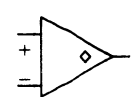
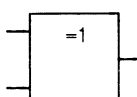
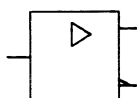
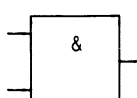
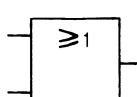
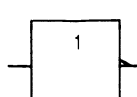
MC79L09AC	4822 209 73233	1N4002	4822 130 30684
MC79M15CT	5322 209 86361	1N4148	4822 130 30621
MC7906CT	4822 209 82056	HZ7C2/7V2	4822 130 32862
TY40408 (+5V)	4822 209 71579	BA314	4822 130 30879
MC78M15	4822 209 80808	HZ3B2	4822 130 32831
TDA8808T	4822 209 73234	HZ7A3	4822 130 33523
TDA8809T/C2	4822 209 73235	BAT85	4822 130 31983
SAA7210P/04	4822 209 71001		
μPD41416C-20	4822 209 50582	CSA4.000	
SAA7220	4822 209 11157	11289.6 kHz	
TDA1541A/N2	4822 209 72544		
TDA1543	4822 209 73236	Coil 4.7 mH	
LM833N	4822 209 83163		
NJM4560D	4822 209 83274	Safety resistors	
TCA0372DP2	4822 209 72587	1/3 Watt	
MC68HC05C8	4822 209 73232	4E7	
		12E	
BC328-16	4822 130 41023	18E	
BC328	4822 130 44104	100E	
BC338	4822 130 44121	120E	
BC558B	4822 130 44197	220R	
BC858	5322 130 42012	330E	
BC848	5322 130 41981	750R	
BC818	4822 130 42675	1K	
BF550	4822 130 42131	1K2	
Miscellaneous		1K8	
Display	4822 130 90543	2K2	
Cinch socket	4822 267 40766	4K7	
Tack switch (tray)	4822 276 11896	5K6	
Mains switch	4822 276 11309	6K8	
Mains inlet	4822 265 20291	10K	
Phone socket	4822 267 30743	22K	
Fuse holder	4822 256 30274	47K	
Mains transformer	4822 146 30701	100K	
		180K	
330N	5322 121 42661	5M6	
4.7M	4822 124 41577	Non flameable Resistors	
6M8	4822 124 41578	1R	
33M	4822 124 40272	4R7	
47M	4822 124 41527	10R	
100M	4822 124 41528	33R	
220M	4822 124 40196	1K8	
220M	4822 124 41572		
470M	4822 124 41573	4K7	
1000M	4822 124 41571	22K	
6800M	4822 124 41571	4822 101 10685	
Bipolair		4822 100 20522	
0.68M	16V	4822 124 41583	
10M	25V	4822 124 41558	
100M	16V	4822 124 22339	

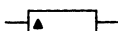
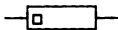
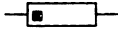
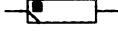
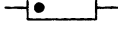
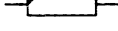
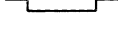
ELECTRICAL PARTSLIST SERVO + DECODER PANEL
(CONTINUED)
For non active chip components see separate stocklist

				
3302	4 E 7	5%	0,33 W	4822 111 30499
3305	4 E 7	5%	0,33 W	4822 111 30499
3306	4 E 7	5%	0,33 W	4822 111 30499
3336	4 E 7	5%	0,33 W	4822 111 30499
3360	4 E 7	5%	0,33 W	4822 111 30499
3369	1 R	5%	0,33 W	4822 111 30483
3372	4 E 7	5%	0,33 W	4822 111 30499
3374	4 E 7	5%	0,33 W	4822 111 30499
3381	4 E 7	5%	0,33 W	4822 111 30499
3383	4 E 7	5%	0,33 W	4822 111 30499
3384	4 E 7	5%	0,33 W	4822 111 30499
3385	4 E 7	5%	0,33 W	4822 111 30499
3388	4 E 7	5%	0,33 W	4822 111 30499
3389	4 E 7	5%	0,33 W	4822 111 30499
3390	4 E 7	5%	0,33 W	4822 111 30499
3396	1 R	5%	0,33 W	4822 111 30483
3404	10 M	5%	0,5 W	4822 116 52494
3418	22 E	5%	0,33 W	4822 111 30517
3419	22 E	5%	0,33 W	4822 111 30517
3421	47 E	5%	0,33 W	4822 111 30526
3422	11 K	1%	0,6 W	4822 116 52907
3424	150 E	1%	0,6 W	4822 116 52846
3425	47 E	5%	0,33 W	4822 111 30526
3426	11 K	1%	0,6 W	4822 116 52907
3428	150 E	1%	0,6 W	4822 116 52846
3429	47 E	5%	0,33 W	4822 111 30526
3430	11 K	1%	0,6 W	4822 116 52907
3432	150 E	1%	0,6 W	4822 116 52846
3433	47 E	5%	0,33 W	4822 111 30526
3434	11 K	1%	0,6 W	4822 116 52907
3436	150 E	1%	0,6 W	4822 116 52846
3446	4 E 7	5%	0,33 W	4822 111 30499
3447	10 E	5%	0,33 W	4822 111 30508
3448	4 E 7	5%	0,33 W	4822 111 30499
3454	820 E	1%	0,6 W	4822 116 52864
3455	820 E	1%	0,6 W	4822 116 52864
3458	33 E	5%	0,33 W	4822 111 30522
3459	33 E	5%	0,33 W	4822 111 30522
3460	2 K 4	1%	0,6 W	4822 116 52851
3461	2 K 4	1%	0,6 W	4822 116 52851
3462	2 K 4	1%	0,6 W	4822 116 52851
3463	2 K 4	1%	0,6 W	4822 116 52851
3464	33 E	5%	0,33 W	4822 111 30522
3465	33 E	5%	0,33 W	4822 111 30522
3466	620 E	5%	0,5 W	4822 116 52429
3467	4 E 7	5%	0,33 W	4822 111 30499
3476	620 E	5%	0,5 W	4822 116 52429
3477	4 E 7	5%	0,33 W	4822 111 30499
3482	330 R	1%	0,6 W	5322 116 53736
3483	270 E	1%	0,6 W	5322 116 53288
Miscellaneous				
	Spring clip			4822 255 40179
5001	Mains transformer			4822 146 30701
BU 3	Phone socket			4822 267 30743
BU 2	Cinch socket 4p			4822 267 40766
BU 1	Mains inlet			4822 265 20291
SK1	Mains switch			4822 276 11309
SK2	Switch			4822 276 11896
	Holder fuse			4822 256 30274
1510	Fuse T160 mA			4822 253 30009
	Thermal fuse trafo 220/240 V			4822 252 20017
	Thermal fuse trafo 110/127 V			4822 252 20108

SYMBOL	DESCRIPTION
	Capacitor, general
	Electrolytic capacitor (+ and - may be omitted)
	Bipolar electrolytic capacitor (+ may be omitted)
	Resistor, general
	N.T.C. resistor
	P.T.C. resistor
	Voltage divider with preset adjustment
	Chip jumper
	Pin contact
	Bus contact
	Coil, self-induction
	Transformer with electrically poor conducting core and adjustable pre-magnetization
	Diode
	Zener diode
	Stabistor
	Double variable capacity diode (in one envelope)
	Photo conductive diode
	L.E.D.

SYMBOL	DESCRIPTION
	Transistor (N.P.N.)
	Transistor (P.N.P.)
	Direct current (DC)
	Alternating current (AC)
	Earth (functional)
	Frame or chassis connection
	Direction in which AC voltages are passed on (optional present)
	Interrupted line
	Not-connected crossing lines
	Connected lines
	Cable tree with lead-outs
	Changer, general (arrow is optional)
	Voltage Controlled Oscillator
	Band-pass filter
	Phase changing network
	Delay element
	Amplifier, general

SYMBOL	DESCRIPTION
	Operational amplifier
	Differential amplifier
	Splitter
	Operational amplifier with open output
	Exclusive OR gate
	True/complement amplifier with high input
	Flip Flop
	AND gate
	OR gate
	Inverter with high input

	0.2W (CR 16)	220k 270k	5% 10%
	0.33W (CR 25)	1M 1M	5% 10%
	0.33W (SFR25)		5%
	0.25W (VR 25)	10M 10M	5% 10%
	0.5W (CR 37)	1M 1M	5% 10%
	0.67W (CR 52)		5%
	1.15W (CR 68)		5%
	Ceramic plate		
	Polyester flat foil		
	Polyester mepolesco		
	Mylar (Polyester flat foil small sized)		
	Micropoco		
	Tubular ceramic (body colour pink or yellow/green)		
	Miniature single elco		
	Subminiature tantalum		

* a=2,5V
b=4V
c=6,3V
d=10V
e=16V
f=25V
g=40V
h=63V
i=100V
j=125V
l=125V
m=150V
n=160V
q=200V
r=250V
s=300V
t=350V
u=400V
v=500V
w=630V
x=1000V
A=1.6V
B=6V
C=12V
D=15V
E=20V
F=35V
G=50V
H=75V
I=80V

MDA.00084
T32-735

Chips 50 V NP0 S1206				Chips 0,125 W S1206				Chips 0,125 W S1206				1U
1 pF	5%	4822 122 32479		4,7 E	5%	5322 111 90376		6,8 k	2%	4822 111 90544		
1,2 pF	5%	4822 122 33013		5,1 E	5%	4822 111 90393		7,5 k	2%	4822 111 90276		
1,5 pF	5%	4822 122 31792		5,6 E	5%	4822 111 90394		8,2 k	2%	5322 111 90118		
1,8 pF	5%	4822 122 32087		6,2 E	5%	4822 111 90395		9,1 k	2%	4822 111 90373		
2,2 pF	5%	4822 122 32425		6,8 E	5%	4822 111 90254		10 k	2%	4822 111 90249		
3,3 pF	5%	4822 122 32079		7,5 E	5%	4822 111 90396		11 k	2%	4822 111 90337		
3,9 pF	5%	4822 122 32081		8,2 E	5%	4822 111 90397		12 k	2%	4822 111 90253		
4,7 pF	5%	4822 122 32082		9,1 E	5%	4822 111 90398		13 k	2%	4822 111 90509		
5,6 pF	5%	4822 122 32506		10 E	2%	5322 111 90095		15 k	2%	4822 111 90196		
6,8 pF	5%	4822 122 32507		11 E	2%	4822 111 90338		16 k	2%	4822 111 90346		
8,2 pF	5%	4822 122 32083		12 E	2%	4822 111 90341		18 k	2%	4822 111 90238		
10 pF	5%	4822 122 31971		13 E	2%	4822 111 90343		20 k	2%	4822 111 90349		
12 pF	5%	4822 122 32139		15 E	2%	4822 111 90344		22 k	2%	4822 111 90251		
15 pF	5%	4822 122 32504		16 E	2%	4822 111 90347		24 k	2%	4822 111 90512		
18 pF	5%	4822 122 31769		18 E	2%	5322 111 90139		27 k	2%	4822 111 90542		
22 pF	10%	4822 122 31837		20 E	2%	4822 111 90352		30 k	2%	4822 111 90216		
27 pF	5%	4822 122 31966		22 E	2%	4822 111 90186		33 k	2%	5322 111 90267		
33 pF	5%	4822 122 31756		24 E	2%	4822 111 90355		36 k	2%	4822 111 90514		
39 pF	5%	4822 122 31972		27 E	2%	5322 111 90105		39 k	2%	5322 111 90108		
47 pF	5%	4822 122 31772		30 E	2%	4822 111 90356		43 k	2%	4822 111 90363		
56 pF	5%	4822 122 31774		33 E	2%	4822 111 90357		47 k	2%	4822 111 90543		
68 pF	5%	4822 122 31961		36 E	2%	4822 111 90359		51 k	2%	5322 111 90274		
82 pF	10%	4822 122 31839		39 E	2%	4822 111 90361		56 k	2%	4822 111 90573		
100 pF	5%	4822 122 31765		43 E	2%	5322 116 90125		62 k	2%	5322 111 90275		
120 pF	5%	4822 122 31766		47 E	2%	4822 111 90217		68 k	2%	4822 111 90202		
150 pF	5%	4822 122 31767		51 E	2%	4822 111 90365		75 k	2%	4822 111 90574		
180 pF	2%	4822 122 31794		56 E	2%	4822 111 90239		82 k	2%	4822 111 90575		
220 pF	5%	4822 122 31965		62 E	2%	4822 111 90367		91 k	2%	5322 111 90277		
270 pF	5%	4822 122 32142		68 E	2%	4822 111 90203		100 k	2%	4822 111 90214		
330 pF	10%	4822 122 31642		75 E	2%	4822 111 90371		110 k	2%	5322 111 90269		
390 pF	5%	4822 122 31771		82 E	2%	4822 111 90124		120 k	2%	4822 111 90568		
470 pF	5%	4822 122 31727		91 E	2%	4822 111 90375		130 k	2%	4822 111 90511		
560 pF	5%	4822 122 31773		100 E	2%	5322 111 90091		150 k	2%	5322 111 90099		
680 pF	5%	4822 122 31775		110 E	2%	4822 111 90335		160 k	2%	5322 111 90264		
820 pF	5%	4822 122 31974		120 E	2%	4822 111 90339		180 k	2%	4822 111 90565		
1 nF	10%	5322 122 31647		130 E	2%	4822 111 90164		200 k	2%	4822 111 90351		
1,2 nF	5%	4822 122 31807		150 E	2%	5322 111 90098		220 k	2%	4822 111 90197		
1,5 nF	10%	4822 122 31781		160 E	2%	4822 111 90345		240 k	2%	4822 111 90215		
1,8 nF	10%	4822 122 32153		180 E	2%	5322 111 90242		270 k	2%	4822 111 90302		
2,2 nF	10%	4822 122 31644		200 E	2%	4822 111 90348		300 k	2%	5322 111 90266		
2,7 nF	10%	4822 122 31783		220 E	2%	4822 111 90178		330 k	2%	4822 111 90513		
3,3 nF	10%	4822 122 31969		240 E	2%	4822 111 90353		360 k	2%	4822 111 90515		
3,9 nF	10%	4822 122 32566		270 E	2%	4822 111 90154		390 k	2%	4822 111 90132		
4,7 nF	10%	4822 122 31784		300 E	2%	4822 111 90156		430 k	2%	4822 111 90158		
5,6 nF	10%	4822 122 31916		330 E	2%	5322 111 90106		470 k	2%	4822 111 90151		
6,8 nF	10%	4822 122 31976		360 E	1%	4822 111 90288		510 k	2%	4822 111 90354		
10 nF	10%	4822 122 31728		360 E	2%	4822 111 90358		560 k	2%	4822 111 90159		
12 nF	10%	5322 122 31648		390 E	2%	5322 111 90138		620 k	2%	4822 111 90213		
15 nF	10%	4822 122 31782		430 E	2%	4822 111 90362		680 k	2%	4822 111 90358		
18 nF	10%	4822 122 31759		470 E	2%	5322 111 90109		750 k	2%	4822 111 90359		
22 nF	10%	4822 122 31797		510 E	2%	4822 111 90245		820 k	2%	4822 111 90205		
27 nF	10%	4822 122 32541		560 E	2%	5322 111 90113		910 k	2%	4822 111 90374		
33 nF	10%	4822 122 31981		620 E	2%	4822 111 90366		1 M	2%	4822 111 90252		
47 nF	10%	4822 122 32542		680 E	2%	4822 111 90162		1,1 M	5%	4822 111 90408		
56 nF	10%	4822 122 32183		750 E	2%	5322 111 90306		1,2 M	5%	4822 111 90409		
100 nF	10%	4822 122 31947		820 E	2%	4822 111 90171		1,3 M	5%	4822 111 90411		
180 nF	10%	4822 122 32915		910 E	2%	4822 111 90372		1,5 M	5%	4822 111 90412		
220 nF	20%	4822 122 32715		1 k	2%	5322 111 90092		1,6 M	5%	4822 111 90413		
Chips 0,125 W S1206 NP0				1,1 k	2%	4822 111 90336		1,8 M	5%	4822 111 90414		
0 E	jumper	4822 111 90163		1,2 k	2%	5322 111 90096		2 M	5%	4822 111 90415		
1 E	5%	4822 111 90184		1,3 k	2%	4822 111 90244		2,2 M	5%	4822 111 90135		
1,1 E	5%	4822 111 90377		1,5 k	2%	4822 111 90151		2,4 M	5%	4822 111 90416		
1,2 E	5%	4822 111 90378		1,6 k	2%	5322 111 90265		2,7 M	5%	4822 111 90417		
1,3 E	5%	4822 111 90379		1,8 k	2%	5322 111 90101		3 M	5%	4822 111 90418		
1,5 E	5%	4822 111 90381		2 k	2%	4822 111 90165		3,3 M	5%	4822 111 90191		
1,6 E	5%	4822 111 90382		2,2 k	2%	4822 111 90248		3,6 M	5%	4822 111 90419		
1,8 E	5%	4822 111 90383		2,4 k	2%	4822 111 90289		3,9 M	5%	4822 111 90421		
2 E	5%	4822 111 90384		2,7 k	2%	4822 111 90569		4,3 M	5%	4822 111 90422		
2,2 E	5%	5322 111 90104		3 k	2%	4822 111 90198		4,7 M	5%	4822 111 90423		
2,4 E	5%	4822 111 90385		3,3 k	2%	4822 111 90157		5,1 M	5%	4822 111 90424		
2,7 E	5%	4822 111 90386		3,6 k	2%	5322 111 90107		5,6 M	5%	4822 111 90425		
3 E	5%	4822 111 90387		3,9 k	2%	4822 111 90571		6,2 M	5%	4822 111 90426		
3,3 E	5%	4822 111 90388		4,3 k	2%	4822 111 90167		6,8 M	5%	4822 111 90235		
3,6 E	5%	4822 111 90389		4,7 k	2%	5322 111 90111		7,5 M	5%	4822 111 90427		
3,9 E	5%	4822 111 90391		5,1 k	2%	5322 111 90268		8,2 M	5%	4822 111 90237		
4,3 E	5%	4822 111 90392		5,6 k	2%	4822 111 90572		9,1 M	5%	4822 111 90428		
				6,2 k	2%	4822 111 90545		10M	5%	5322 111 91141		